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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,235	11/07/2001	Jennifer L. Lee	55393US011	1507

32692 7590 05/15/2006

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EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,235

Applicant(s)

LEE ET AL.

Examiner

Susan W. Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 28-63 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 8-27,64

is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/23/2006 has been entered.

Response to Arguments

Applicant's arguments filed 02/23/2006 have been fully considered but they are not persuasive.

Applicant argues that WO '787 does not teach the instantly claimed combination of components as reactive diluent. With respect to the claim language, claims 8 and 64, as written, require a high T_g monomer (a) and 0.1 to 50 wt % adhesion promoting component comprising a heterocyclic monomer and/or a monomer comprising a pendant alkoxyated moiety. The multifunctional monomer (c) is not clearly differentiated from (a) or (b) or (d). Component (d) in an amount "no more than" about 10 wt % includes zero wt % (d). Applicant argues that WO '787 teaches a wide variety of materials with little or no guidance as to how to chose combination and/or amounts, specifically no suggestion to use from 0.1 to 50 wt. % tetrahydrofurfuryl acrylate or 2-(2-ethoxyethoxy)ethyl (meth)acrylate as reactive diluent. With respect to claim 11, Applicant argues that WO '787 does not teach that the oligo/resin be aliphatic. With respect to claims 14 and 26, WO '787 does not suggest the particular ratios of components.

WO '787 provides motivation to select isobornyl acrylate, a monomer well known as a high T_g monomer, by using it in the examples. WO '787 provides motivation to employ a mixture of monofunctional monomers in amounts from 20-60 wt% of reactive material in the ink and to select isobornyl acrylate and/or tetrahydrofurfuryl acrylate as the monofunctional material by teaching that these cyclic acrylates are "more preferred" (page 9, last paragraph). Motivation to select 2-(2-

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ethoxyethoxy)ethyl acrylate is provided by naming it as the example of an acrylate of alkoxyated alcohols to be used as monofunctional acrylate (page 10, first 5 lines).

WO '787 provides motivation to employ a mixture of difunctional materials such as hexanediol diacrylate (applicant's multifunctional monomer) and/or propoxylated neopentyl glycol diacrylate (applicant's alkoxyated radiation curable monomer containing main-chain alkoxy groups) by teaching that these monomers have a desirable viscosity at 30 °C (paragraph bridging pages 10-11). Amounts preferably at least 5 wt% of total reactive material in the ink are taught (page 16). WO '787 teaches additional tri- or higher functional alkoxyated acrylates that have desirably low viscosities and can be used in amounts from 10-30% by weight (page 11). Trimethylpropane ethoxylate triacrylate is used in the examples in a 10% amount, providing further motivation to select an alkoxyated monomer.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 8-27 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/299787. WO '787 discloses radiation curable ink jet ink compositions having a viscosity no greater than 35 mPa.s at 30 °C. WO '787 teaches compositions comprising a photoinitiator and oligomers such as polyester-, urethane- and epoxy-acrylates. A reactive liquid material comprising mono- and difunctional acrylates is taught. Preferred monofunctional acrylates, used in amounts from 20 to 60 wt. %, are tetrahydrofurfuryl acrylate and isobornyl acrylate and acrylates of alkoxyated alcohols, e.g. 2-(2-ethoxyethoxy)ethyl acrylate or vinyl monomers such as N-vinyl 2-pyrrolidone (pages 9-10 and 15). Difunctional acrylates having the required low viscosity, preferably at least 5 wt. %, include hexanediol diacrylates and propoxylated neopentyl glycol diacrylate, etc (pages 10-11 and 16). Tri-functional acrylates specifically taught are alkoxyated acrylates in amounts from 10-30 wt % (pages 11 and 16).

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The examples in Tables 1-3 disclose compositions comprising about 40% isobornyl acrylate and 10% trimethylpropane ethoxylate triacrylate monomer with a urethane acrylate prepolymer and a photoinitiator.

The difference between the disclosed compositions and the instantly claimed compositions is that applicant requires that the reactive diluent include a high Tg component and 0.1 to 50 wt % adhesion promoting component comprising a heterocyclic radiation curable monomer or a monomer containing a pendent alkoxyated moiety. However, WO '787 teaches preferably including tetrahydrofurfuryl acrylate and/or acrylates of alkoxyated alcohols, e.g. 2-(2-ethoxyethoxy)ethyl, as the acrylate monofunctional acrylate. Thus, It would have been obvious to one skilled in the art at the time of the invention to employ mixtures of mono-functional acrylates and mixtures of multifunctional acrylates in the reactive diluent mixture taught by WO '787. It would further have been obvious to one skilled in the art at the time of the invention to select isobornyl acrylate, as taught by WO '787, thus providing applicant's high Tg component. It would further have been obvious to one skilled in the art at the time of the invention to employ tetrahydrofurfuryl acrylate and/or 2-(2-ethoxyethoxy)ethyl acrylate as monofunctional monomers in the disclosed compositions, thus providing applicant's adhesion promoting component, as taught by WO '787. WO '787 provides motivation to employ a mixture of monofunctional monomers in amounts from 20-60 wt% of reactive material in the ink and to select isobornyl acrylate and/or tetrahydrofurfuryl acrylate as the monofunctional material by teaching that these cyclic acrylates are "more preferred" (page 9, last paragraph). Motivation is provided to select isobornyl acrylate by the teaching of WO '787 that isobornyl acrylate is a preferred monofunctional monomer and by the use of isobornyl acrylate in the examples. Motivation to include tetrahydrofurfuryl acrylate is provided by the teaching of WO '787 that this is a preferred monomer. Motivation to select 2-(2-ethoxyethoxy)ethyl acrylate is provided by naming it as the example of an acrylate of alkoxyated alcohols to be used as monofunctional acrylate (page 10, first 5 lines). One of ordinary skill in the art at the time of the invention would have been motivated by a

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reasonable expectation of providing useful ink jet ink compositions by the teaching of WO '787 that these monomers are preferred and provide the required viscosity for ink jet ink printing, in the absence of a showing of unexpected results therefrom.

With respect to claims 14 and 26, It would have been obvious to one skilled in the art at the time of the invention to determine the weight percents of specific monomers required to obtain the desired viscosity and other properties from the teachings of WO '787. With respect to claim 23, It would have been obvious to one skilled in the art at the time of the invention to employ N-vinylcaprolactam as the monofunctional vinyl monomer because it is analogous to the disclosed N-vinylpyrrolidone taught by WO '787. With respect to claim 24, It would have been obvious to one skilled in the art at the time of the invention to employ propoxyethyl (meth)acrylate as a monofunctional monomer in the reactive diluent because WO '787 teaches using an acrylate monomer of an alkoxyated alcohol. With respect to claim 25, It would have been obvious to one skilled in the art at the time of the invention to employ diacrylate of neopentyl glycol in the reactive diluent because WO '787 teaches that this monomer has a suitable low viscosity. With respect to claims 26 and 27, It would have been obvious to one skilled in the art at the time of the invention to employ both tetrahydrofurfuryl acrylate and 2-(2-ethoxyethoxy)ethyl acrylate as monofunctional monomers in the disclosed compositions and to determine the amounts of each required to obtain the desired properties. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a radiation curable ink jet ink free of non-reactive diluent and having the desired viscosity, surface tension, volatility, stability and drying rate, as taught by WO '787, because WO '787 specifically teaches the monofunctional and difunctional materials set forth in the instant claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise

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extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 8-27 and 64 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,534,128. Although the conflicting claims are not identical, they are not patentably distinct from each other because the components of the compositions meeting the definitions set forth in the claims can be the same components although the definitions are not identical. The oligomers set forth in the claims of US '128 are aliphatic urethane acrylate oligomers. The radiation curable reactive diluent set forth in the claims of US '128 considered in view of the disclosure of the components providing the reactive diluent comprises the instantly claimed reactive diluent since the same components as disclosed are set forth in the instant claims.

Claims 8-27 and 64 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,558,753. Although the conflicting claims are not identical, they are not patentably distinct from each other because the components of the compositions meeting the definitions set forth in the claims can be the same components although the definitions are not identical. The oligo/resin is set forth in the claims of US '753 and in the instant claims. The radiation curable reactive diluent set forth in the claims of US '753 considered in view of the disclosure of components providing the reactive diluent comprises the instantly claimed reactive diluent because the same components as disclosed are set forth in the instant claims.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB
5/8/06


Susan W Berman
Primary Examiner
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